**Committee:** Disarmament and International Security Committee (GA1)

**Issue:** Usage of electronic equipment in war

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## Introduction to the Issue

With our developing world, having technologically developed weapons in warfare has become essential. These technologically developed weapons can be called as 'modern weapons'. The system of these weapons employ radio, radar, infrared, optical, ultraviolet, electro-optical, and laser technologies. Modern weapons can cause different effects upon animals and humans . Each and every single day, these modern weapons are improved by the scientist in order to surpass the modern weapons of other countries. While this may seem as a necessary to win a war there is a no end to develop this weapons. Since the technology is improved everyday, in a couple of years it will be possible to kill a whole nation by just a click.

## Involved Countries & Organizations

### Russian Federation

Russian forces have been particularly successful at using electronic warfare (E.W.) technology to interfere with operations of the United States and its allies on the territory of the Arab republic Russian electronic warfare weapons are superior to American systems by a number of parameters, especially when it comes to range. In particular, they are effective against unmanned aerial vehicles, as the Syria experience has shown. Russia uses using equipment like the Krasukha-4, which jams radar and aircraft. It all started with the Russian invasion  into Crimea in t 2014. Not long after Russian EW equipment began rolling into the region, Ukrainian troops began to find that their radios and phones were unusable for hours at a time. Meanwhile, the Organization for Security and Co-operation in Europe, an international conflict-monitoring group, has consistently reported that its drones watching the conflict in eastern

Ukraine have been “subject to military-grade GPS jamming,” forcing monitors to scrub missions taking stock of the war below. Since then Russia has shown radical increase in its EW capabilities thanks to the procurement of new and modern EW systems.

## United States of America

In 1990’s USA was ranked first as the country which had the most developed modern weapons. However, with the developments of Russia and China’s modern weapons, they have fallen back."The Russians and the Chinese have designed specific electronic warfare platforms to go after all our high-value assets," said Lieutenant General Herbert Carlisle, the Air Force's Deputy Chief of Staff for Operations. Moreover, with the advantage that U.S has because of their economy they are still developing their modern weapons to compete with Russians

Image 1: Troops with modern weapons

## NATO

The NATO Electronic Warfare Advisory Committee (NEWAC) is responsible for overseeing the development of NATO’s EW policy, principles, and command and control concepts as well as monitoring EW support to NATO operations. It also assists in introducing NATO’s EW concepts to partner countries within the framework of the Partnership for Peace programme. The NEWAC is composed of representatives of each NATO country and of the Strategic Commands. There are a number of subordinate groups dealing with electronic warfare database support, training and principles.
EW policy is covered under MC 0064, the NATO Policy for EW. This policy has been revised a total of 10 times in order to keep pace with changes in the electromagnetic and operational environment, the NATO Command Structure, and the threats facing the Alliance. This policy is agreed to by all Allies and provides the overarching guidance required to formulate common principles and interoperability standards.

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## Detailed Analysis of the Issue

Usage of Modern weapons in war are called as electronic warfare (EW). NATO defines 'EW' as 'The purpose of EW is to deny the opponent the advantage of, and ensure friendly unimpeded access to the electromagnetic spectrum. EW can be applied from air, sea, land and space, and target communication and radar systems. It involves the use of the electromagnetic energy to provide improved understanding of the operational environment as well as to achieve specific effects on the modern battlefield.The need for military forces to have unimpeded access to and use of the electromagnetic environment creates challenges and opportunities for EW in support of military operations.'The history of Electronic Warfare goes back to the beginning of the 20th century ,during the Russian-Japanese War of 1904-1905. Moreover, it continued with World War II, the Allies and Axis Powers both extensively used EW, or what Winston Churchill referred to as the "Battle of the Beams". Navigational radars had gained in use to vector bombers to their targets and back to their home base. The first application of EW in WWII was to defeat those navigational radars. Chaff ( modern weapon) was also introduced during WWII to confuse and defeat tracking radar systems.

Within time, battlefield communication and radar technology improved, so did EW. Electronic warfare played a major role in many military operations during the Vietnam War.In December 2010, the Russian army received their first land-based Army operated multifunctional electronic warfare system Development of the system started in 2004 and evaluation testing successfully completed in December 2010. Russians can bring four different types of jamming stations into a single system with a single control console helping the operator make battlefield decisions within seconds. It can be said that Russians are ahead of every country when it comes to 'EW' power. Electronic warfare consists of three subdivisions: Electronic Attack (EA), Electronic Protection (EP), and Electronic Warfare Support (ES):

### Electronic Attack

ECM is the active part of EW and is intended to disrupt the surveillance systems of the enemy, whether by radar or radio communications, and also to counter any of his weapons which use electromagnetic, infrared or laser systems for guidance or aiming. There are two main methods of achieving this: by jamming, or by trapping the enemy, both of which are effective when used properly. Many modern ECM equipment, particularly in the naval scenario, employ both methods in an integrated system.

Noise jamming is the use of transmissions to disrupt the enemy's communications channels or to saturate his radar to obscure its target. Although this denies the enemy his information channels it also means that the jamming source cannot read the signals for intelligence purposes.

### Electronic Protection

Electronic Protection (EP) involves actions taken to protect friendly forces (personnel, facilities, and equipment) from any effects of friendly or enemy use of the electromagnetic spectrum that degrade, neutralize, or destroy friendly combat capability (protects from electronic attack). So, EP brings with it the ability to defeat EA."jamming" is not part of EP, it is the target of EP. Jamming is an EA capability

Flares are often used to distract infrared homing missiles to miss their target. The use of flare rejection logic in the guidance of an infrared homing missile to counter an adversary's use of flares is an example of EP. While defensive EA actions (jamming) and EP (defeating jamming) both protect personnel, facilities, capabilities, and equipment, EP protects from the effects of EA. Which basically means that EA and EP are both defense system for a military and EP has the defensive power of protecting a military from EA power. Other examples of EP include spread spectrum technologies, use of restricted frequency lists, emissions control, and low observability technology.

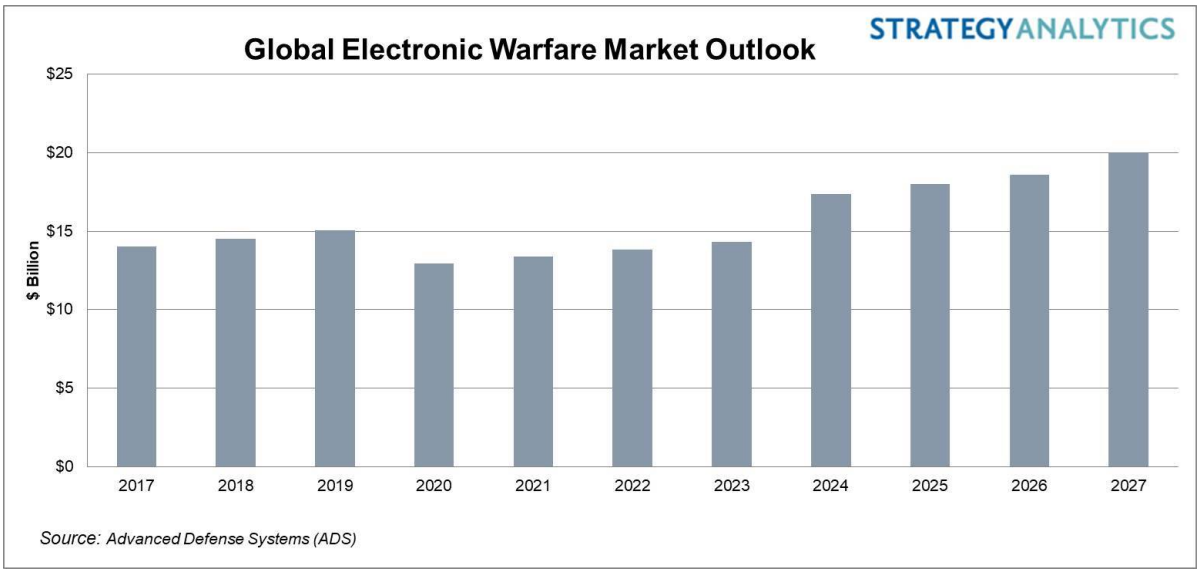
### Electronic warfare support

Electronic Warfare Support (ES) is a part of EW involving actions taken by an operational commander or operator to detect, intercept, identify, locate, and/or localize sources of intended and unintended radiated electromagnetic (EM) energy. This is often referred to as simply reconnaissance. The purpose is to provide immediate recognition, prioritization, and targeting of threats to battlefield commanders.

### Effects of EW

EW has many positive effects and negative. With the use of the electromagnetic spectrum, it is easier to disarm the enemy forces quickly, which leads to their surrendering; which means the end of the war. And since EW can be applied to everywhere this helps military to locate enemies easily. Moreover, since EW is not focused on constructions and such, less destruction can be observed. As it has been stated before EW focuses on people and animals not buildings. In addition, since modern weapons have the power of accurately spotting the enemy, no accidental destructions

occur. However, according to health digest, continuous exposition to radiation and infrared beams can lead to cancer. And that electromagnetic warfare should not be promoted when it has some inherent health risks to users of the instrument. Moreover, with developments these modern weapons will have the power of killing millions of people with just a switch of a button. Even though the control is under NATO, most countries are not a part of NATO such as the biggest power-holder Russian Federation. So, there is actually no framework for EW that is accepted globally.




Picture 3 : Estimated growth for EW market

## List of Important Events

| **Date (Day/Month/Year)** | Event |
|---|---|
| **1904** | Russian-Japanese War. Japan is credited with making the first wireless interception in history, and so launching the era of signals intelligence. |
| 1940 | Battle of Britain. Establishment of RADAR by Britain |

| | |
|---|---|
| 1952 | Cold War. The Soviet Union used radio jamming for the first time |
| 1966 | The NATO Electronic Warfare Advisory Committee was created. |
| 1973 | Battle of Latakia. Electronic warfare was carried to sea for the first time |
| 2005 | Stuxnet was created. It is a malicious computer worm that caused significant damage to the Iranian nuclear programme. |
| 2018 | Chine opened a new research facility in order to research upon using quantum powers in warfare |

## Past Resolutions and Important Documents

NATO ELECTRONIC WARFARE POLICY/MC 0064/1956-09-14

http://archives.nato.int/nato-electronic-warfare-policy

This is the NATO policy upon the topic of EW. It has been revised 10 times.

## Past Attempts to Solve the Issue

As stated before the committee NEWAC was created in order to have a policy upon the topic of EW. Other than that no other attempts were done in order to find a solution upon the issue.

## Possible Solutions

It is very important to have a universal treaty for EW since technology is a source in war which is not controlled by a treaty nor legislation. Member states should hold meetings in order to talk upon the issue and the future of this issue. Moreover, a universal definition which is accepted by all member states

should be found because even with a framework if they do not accept their weapon as a modern weapon, the treaty/ legislation can not be put in power. Lastly, it is crucial to educate people upon the topic of EW and the effects of it so that people can be up-to-date upon the topic.

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